Witco

July 14, 1987

Mr. George Hoessel, Chief
UIC Section - DW/GW Protection Branch
U.S. Environmental Protection Agency, Region III
841 Chestnut Building
Philadelphia, PA 19107

RE: Response to EPA's Review of Witco's 1986 Annual Report dated June 12, 1987.

Dear Mr. Hoessel:

The following lease-by-lease responses to your review of the Annual Report should clear up any remaining questions or discrepancies that the EPA may have concerning Witco's injection operations:

Bells Camp - PAS2R401AMCK

Barry Lease - The nine wells referred to in addition to three others have been plugged and abandoned. A letter of certification was sent to the EPA on May 12, 1987.

Watson Lease - The twelve injection wells on this lease have been plugged and abandoned. A letter of certification was sent to the EPA on May 12, 1987.

Greer Lease - We will notify Dave Rectenwald when plans are made to MIT those five wells this summer.

Boyd Lease - The eight active injection wells passed their MIT's in March, 1986. Therefore, on the two year cycle, they are not due to be tested again until March, 1988.

McFadden Lease - There are presently 33 active injection wells on this lease. Casing and cementing options were submitted for 35 wells, but since then wells nos. KW14 and KW28 have been plugged and abandoned due to failing the MIT. A letter of certification was sent to the EPA on June 18, 1987.

Witco Corporation
Oil & Gas Division, 77 North Kendall Ave., Bradford, Pa. 16701 Area Code 814 Telephone 368-6111

Neath Lease - The calculated Pmax for this lease is as follows: Pmax = (1.21 - 0.433) psi/ft. x 1375 ft. = 1068 psi. Therefore, the wells that EPA referred to in actuality do not exceed this Pmax. Included in this submittal is a table showing the calculated Pmax for each of Witco's waterflood leases.

Shannon Lease - Witco will notify EPA when a decision has been made to either sell or plug and abandon this property.

Rixford Lease - These wells will be tested for mechanical integrity in April, 1988.

Germer Lease - Witco will notify EPA prior to testing these wells in March, 1988.

Thompson Facility - PAS2R406AVEN

Injection Well D was shut-in as of December, 1986. This well still remains temporarily abandoned.

Tally Ho PAS2R405AMCK

There are 18 injection wells remaining on this lease and three others individually permitted (W119, W120, W121). Nine have passed MIT's, one failed (W113), two were inconclusive, and nine others will be tested soon. EPA will be notified when the manpower is available to begin testing.

Custer City PAS2R402AMCK

The mechanics of an alternative MIT method are presently being worked out, and EPA will be notified prior to any testing of the twenty would-not-fill wells on this lease. Also, the seven wells referred to are being tested quarterly. Results will be submitted to EPA by July 15th in the quarterly report. Finally, Witco plans to test the remainder of the wells for MIT by September. Dave Rectenwald will be notified prior to the testing.

Hopefully, this information answers all of EPA's questions concerning Witco's annual report. If you need any further information, feel free to contact Tom Defibaugh or myself at this office. Thank you very much for your continued cooperation.

Sincerely,

WITCO CORPORATION
OIL & GAS DIVISION

Guy A. Shirey

Guy A. Shirey
Petroleum Engineer

GAS:ksw

Witco Corporation - Oil & Gas Division
Calculated Pmax for all Waterflood Facilities

Facility Name (EPA ID.#)	Lease Name	Formation Name	Fracture Gradient, psi/ft.	Depth to Formation, D, ft.	Calculated Pmax, psi.
Bells Camp PAS2R401AMCK	Boyd	Bradford 3rd	1.21	1450	1127
	Germer	"	"	1500	1166
	Greer	"	"	1450	1127
	McFadden	"	"	1200	932
	Neath	"	"	1375	1068
	Rixford	"	"	1325	1030
Gibson PAS2R401BMCK	Gibson	Bradford 3rd	1.21	1610	1250
Custer City PAS2R402AMCK	NA	Bradford 3rd	1.21	1300	1010
Tally Ho PAS2R405AMCK	NA	Bradford 3rd	1.21	1600	1243

Calculations:

Pmax = (Formation Frac Gradient (psi/ft) - Hydrastatic Head (psi/ft)
x Depth (ft)

using: Frac Gradient of Bradford 3rd = 1.21 psi/ft

Injection Fluid Specific Gravity = 1.0

The resulting equation is:

$$P_{max} = (1.21 - 0.433) \times D$$

Note: These calculated Pmax figures are higher than those calculated in Witco's Annual Report of 6/84 - 12/85 due to the fact that the frac gradient for the Bradford Third formation is now given by EPA as 1.21 psi/ft as opposed to 1.18 psi/ft as was estimated formerly.